

Chapter 2

Field Artillery Target Acquisition Organizations

This chapter discusses target acquisition organizations and the duties and responsibilities of radar section personnel and USMC counterbattery radar platoon personnel. The duties of other TA personnel are discussed in Chapter 3.

HEAVY DIVISION TARGET ACQUISITION BATTERY

The heavy division target acquisition battery (TAB) is responsible for locating enemy indirect fire weapons and registering and adjusting friendly artillery in the division's battlespace with sufficient accuracy and timeliness for attack by friendly units. The TAB locates indirect fire targets with its organic Q-36 and Q-37 radars. An assistant counterfire officer (WO/131A) and a target processing section are provided to the DIVARTY or FA brigade TOC to support counterfire operations. The addition of the TAB processing section to the counterfire headquarters provides viable 24-hour counterfire operations capability. The target processing section of the DIVARTY or FA brigade TOC normally controls the Q-37 radars. Q-36 radars are normally attached to DS FA battalions and controlled by the DS FA battalion S2. The TAB survey platoon provides location and directional control to TAB elements and aids the DIVARTY or FA brigade survey section as required. Table 2-1 shows the composition of the target processing section and Figure 2-1 shows the organizational structure of the heavy division TAB.

Table 2-1. Heavy Division TAB Target Processing Section

Target Processing Section			
TITLE	MOS	RANK	NUMBER
Asst Counterfire Officer	131A0	CW2	1
Senior FA Targeting NCO	13R	SFC	1
Targeting NCO	13F	SSG	1
Targeting Processing SP	13F	SGT	1
Targeting Processing SP	13F	SPC	1
Targeting Processing SP	13F	PFC	1
TOTAL			6

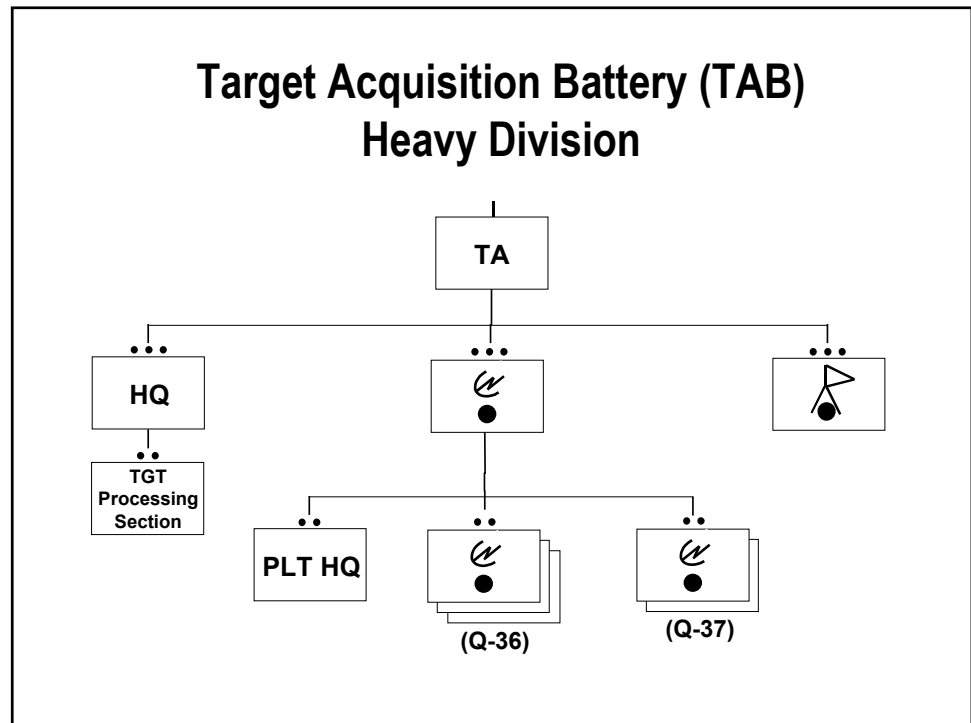


Figure 2-1. Heavy Division Target Acquisition Battery

DIVISIONAL MLRS TARGET ACQUISITION BATTERY

The Divisional MLRS battalion TAB is organic to the heavy division MLRS battalion. The divisional MLRS battalion is organized with a headquarters, headquarters and service battery (HHS), three six-launcher MLRS firing batteries and a TAB. The functions of the divisional MLRS battalion TAB are the same as for the heavy division TAB. The differences are the organizational structure and the parent headquarters. Unlike the heavy division TAB, this organization does not have a separate survey platoon. It only has a single survey section that is part of target acquisition platoon (TAP) headquarters. Further, the target processing section only has five personnel (see Table 2-2). Figure 2-2 shows the organizational structure.

Table 2-2. Division MLRS Battalion TAB Processing Section

Target Processing Section			
TITLE	MOS	RANK	NUMBER
Asst Counterfire Officer	131A0	CW2	1
Senior FA Targeting NCO	13R	SFC	1
Targeting NCO	13F	SSG	1
Targeting Processing SP	13F	SPC	1
Targeting Processing SP	13F	PFC	1
TOTAL			5

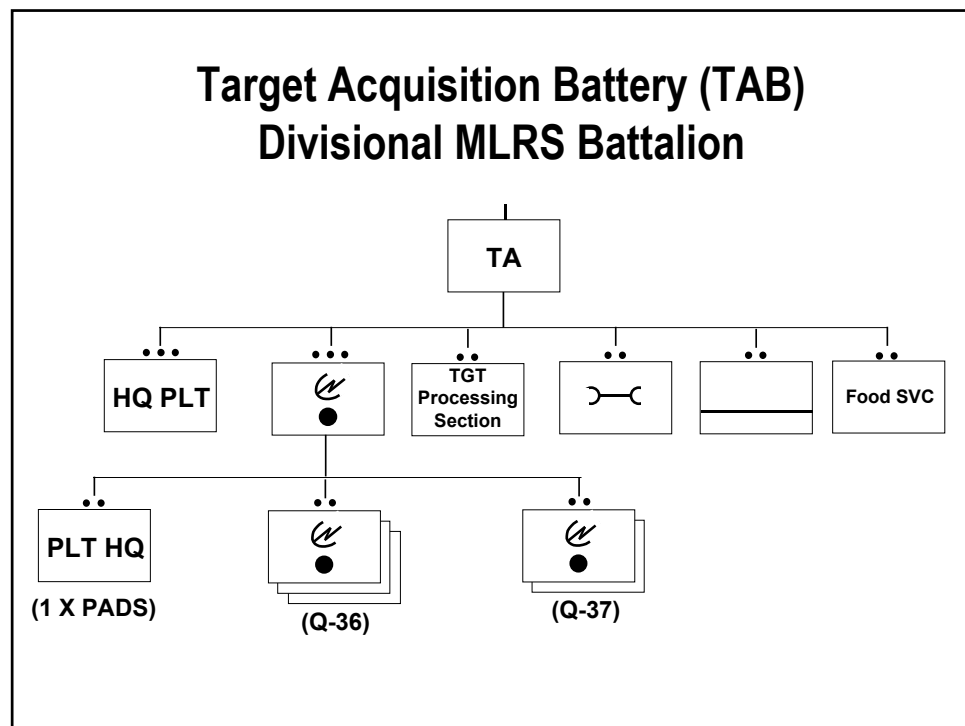


Figure 2-2. Divisional MLRS Battalion Target Acquisition Battery

SEPARATE BRIGADE TARGET ACQUISITION PLATOON

The TAP of the separate brigade provides the brigade with acquisition of threat mortar, artillery, and rocket systems to provide target intelligence and information to allow friendly forces to take force protection measures and enable counterfire mission processing. The TAP also adjusts friendly fire and registers mortars and artillery with its organic Q-36 radar. The TAP is found in the HHS of the direct support field artillery battalion in the separate infantry brigades of the National Guard. These brigades are often referred to as enhanced brigades (EB). This organization consists of a platoon headquarters, Q-36 radar section, meteorological section and a survey section. This organization is capable of supporting all of the separate brigade's target acquisition requirements. The TAP may be augmented with additional assets based on the tactical situation.

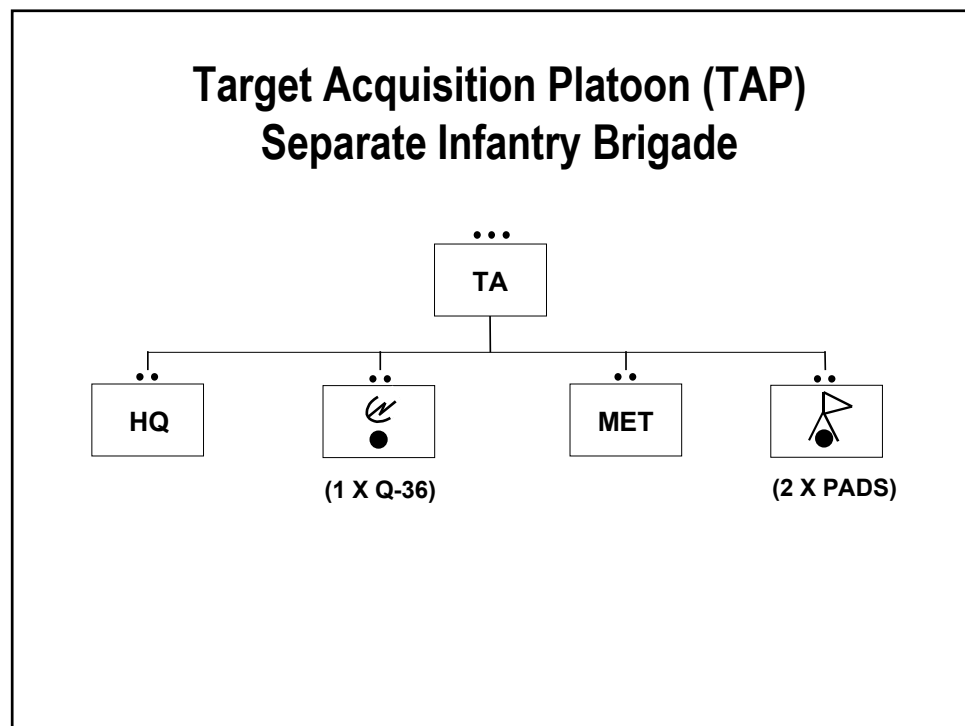


Figure 2-3. Separate Infantry Brigade Target Acquisition Platoon

CORPS TARGET ACQUISITION DETACHMENT

The Corps Target Acquisition Detachment (CTAD) is assigned to corps on the basis of one per light division. It is designed for attachment to light infantry, airborne, and air assault division artilleries or their reinforcing heavy field artillery brigade upon deployment. The CTAD acquires threat artillery, rocket, and missile systems to provide target intelligence and information to allow friendly forces to take force protection measures and enable counterfire mission processing. The CTAD consists of a headquarters section, a PADS team, and two Q-37 radar sections. The detachment headquarters is provided to each light, airborne, air assault division artillery TOC, or their designated counterfire headquarters to help process counterfire targets.

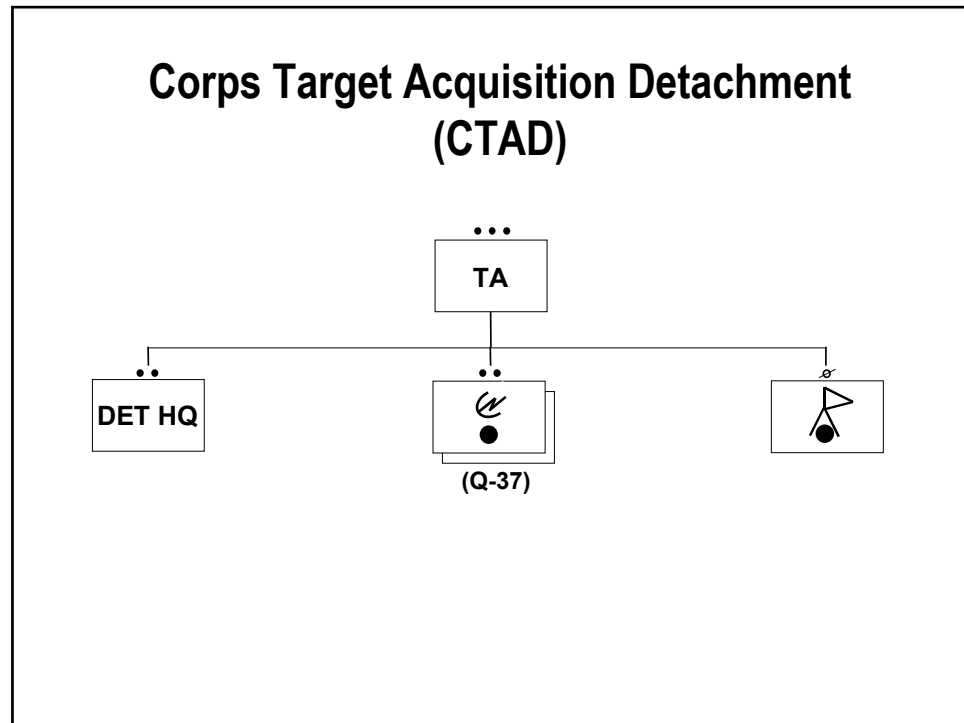


Figure 2.4 Corps Target Acquisition Detachment

The allocation of this organization will change upon fielding of the Q-47 radar. Once the Q-47 is fielded, each corps will be allocated with its own dedicated CTAD in addition to those already allocated to support light, airborne and air assault divisions.

INTERIM BRIGADE COMBAT TEAM TARGET ACQUISITION PLATOON

The interim brigade combat team (IBCT) TAP provides acquisition of threat mortar, artillery, and rocket systems to provide target intelligence and information to allow friendly forces to take force protection measures and enable counterfire mission processing. The platoon consists of one Q-36 and one Q-37 radar team, a meteorological team and a survey team. The platoon deploys in whole or part within tailored force packages. Once in theater, the Fires and Effects Coordination Cell (FECC) controls the employment of the platoon and any additional counterfire radars attached or augmenting the brigade. When in theater, whether it deploys early or with the field artillery battalion, the platoon and/or individual radars will always establish a direct digital and voice link with the FECC. It may also, on occasion, establish an AFATDS digital quick fire channel directly with a delivery unit. The meteorological section provides meteorological support to artillery, mortars and radars to enhance the accuracy of their fires. The survey team provides common survey to field artillery firing units and mortars when required. The survey capability is limited and lacks redundancy because the survey team has only one position and azimuth determining system (PADS).

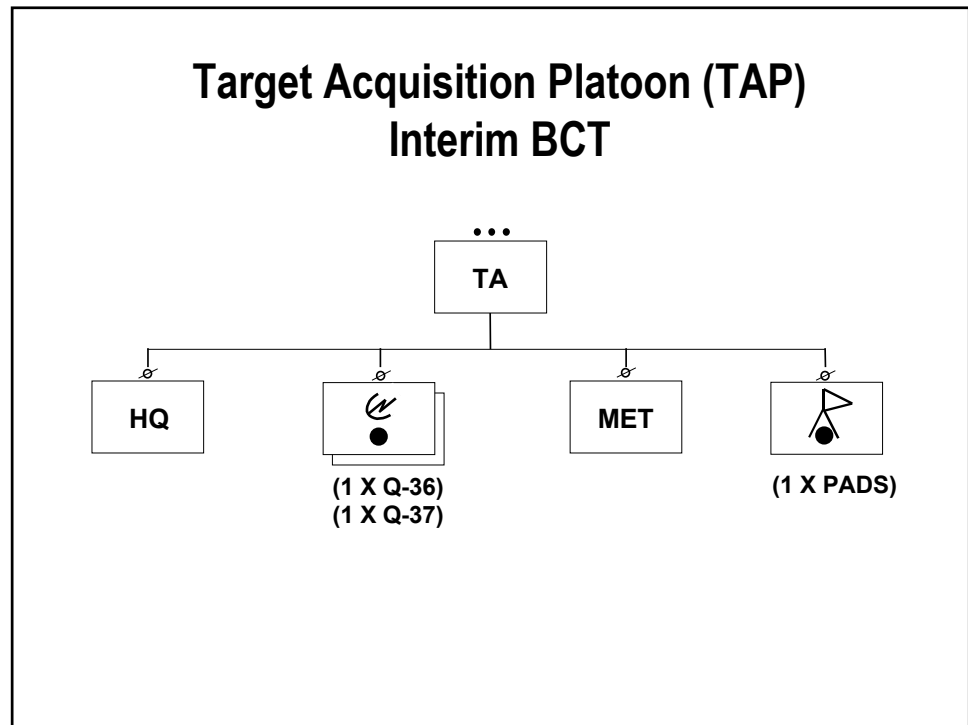


Figure 2-5. Interim BCT Target Acquisition Platoon

The composition of teams in this organizational structure is the same as for sections in the TAB.

INTERIM DIVARTY HIMARS BATTALION TARGET ACQUISITION PLATOON

The IDIVARTY HIMARS TAP provides acquisition of threat artillery, rocket, and missile systems for the interim division to provide target intelligence and information to allow friendly forces to take force protection measures and enable counterfire mission processing. The platoon consists of a platoon headquarters, three Q-37 radar sections, a meteorological section and a survey section. The platoon deploys in whole or part within tailored force packages. Once in theater, the Fires and Effects Coordination Cell (FECC) controls the employment of the platoon and any additional counterfire radars attached or augmenting the division. When in theater, whether it deploys early or with the HIMARS battalion, the platoon and/or individual radars will always establish a direct digital and voice link with the FECC and may establish a AFATDS digital quick fire channel with a delivery unit. The meteorological section provides meteorological support to artillery, radars and mortars to enhance their accuracy. Like the IBCT, the survey capability is limited to one PADS.

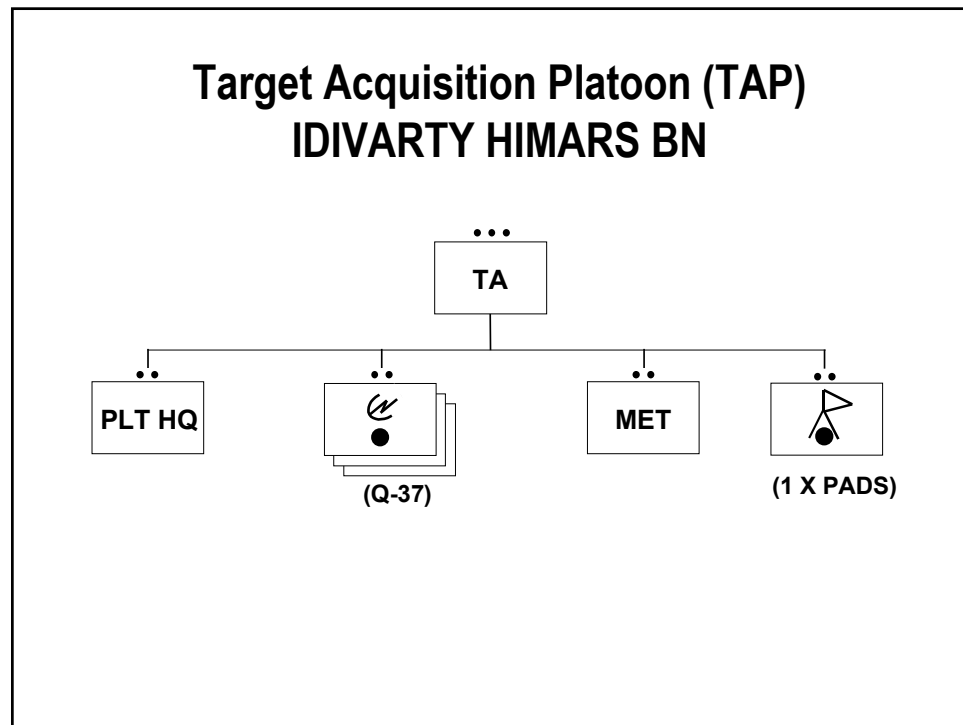


Figure 2-6. IDIVARTY HIMARS Battalion Target Acquisition Platoon

STRIKER PLATOON

The STRIKER platoon provides the maneuver brigade commander with high technology observation teams that are dedicated to executing fires throughout the depth of the brigade's battlespace. This mission includes calling for conventional artillery and rocket fires, providing laser designation for smart munitions and, as a secondary mission, providing reconnaissance and surveillance for the brigade. The STRIKER platoon is one of the brigade's main observation and surveillance assets and is heavily relied upon to provide observation and attack critical targets in the brigade deep fight. Light units are organized with three striker teams and heavy units have six striker teams. Table 2-3 shows the striker platoon's organization.

Table 2-3. STRIKER Platoon Organization

STRIKER Platoon			
TITLE	MOS	RANK	NUMBER
Platoon Leader	13A0	1LT	1
Platoon SGT	13F40	SFC	1
Driver	13F10	PFC	1
STRIKER Team			
TITLE	MOS	RANK	NUMBER
Fire Support SGT	13F20	SGT	1
Fire Support Specialist	13F10	SPC	1
Fire Support Specialist	13F10	PFC	1

AN/TPQ-37(V)8 RADAR SECTION

There are currently four versions of the Q-37 in service, the AN/TPQ-37(V)8, AN/TPQ-37(V)7, AN/TPQ-37(V)6, and the AN/TPQ-37(V)5. All four versions of the radar have a crew of 12. Table 2-4 depicts the organization of the AN/TPQ-37(V) radar section. Regardless of equipment, the mission of the Q-37 radar section is the same. The primary mission is to locate enemy artillery, rocket, and mortar firing positions. In addition, the Q-37 performs high-burst, datum-plane and impact-predict registrations, and adjust-fire mission processing. The designated counterfire headquarters controls the Q-37 radar and support is provided by the TAP or TAB.

Table 2-4. AN/TPQ-37(V) Section Personnel

Title	Rank	MOS	Number
Radar Section Leader	CW2	131A0	1
Section Chief	SSG	13R30	1
Senior Firefinder Radar Operator	SGT	13R20	2
Radar Repairer	SPC	35M10	1
Firefinder Radar Operator	SPC	13R10	3
Power-generation Equipment Repairer	SPC	52D10	1
Firefinder Radar Operator	PFC	13R10	3
Total			12

AN/TPQ-36(V)8 RADAR SECTION

The AN/TPQ-36 weapons locating radar section has a crew of six. Its primary mission is to locate enemy mortar, artillery, and rocket firing positions. This radar is optimized to detect high-angle indirect fire. However, it is equally capable of producing accurate grid locations for indirect fire units using low-angle fire. As a secondary mission the friendly fire mode can be used to perform high-burst, datum-plane, or impact-predict registrations. The fire direction center can use the impact-predict data provided by the radar in the friendly fire mode to conduct adjust-fire missions.

Use of the radar in the friendly fire mode may be required when no registration data and observers are available, and the mission dictates that the target is a high payoff target and must be destroyed. This secondary mission is performed only when absolutely necessary. Table 2-5 depicts the section organization.

Table 2-5. AN/TPQ-36(V)8 Section Personnel

Title	Rank	MOS	Number
Radar Section Leader	CW2	131A0	1
Section Chief	SSG	13R30	1
Senior Firefinder Radar Operator	SGT	13R20	1
Radar Repairer	SPC	35M10	1
Firefinder Radar Operator	SPC	13R10	1
Firefinder Radar Operator	SPC	13R10	1
Total			6

DUTIES OF RADAR SECTION PERSONNEL

The duties of radar section personnel are essentially the same for all weapons locating radars regardless of organizational structure of the assigned target acquisition unit. The following paragraphs provide duties for each section member.

RADAR SECTION LEADER

- Advises the commander and staff of tactical and technical considerations affecting employment of the radar.
- Participates in the MDMP.
- Reconnoiters and selects the site for the radar.
- Supervises the activities of all radar personnel.
- Examines and interprets standard operating procedures, orders, directives, and technical publications for data pertinent to employment of radars and associated equipment.
- Reviews and consolidates requisitions for tools, repair parts, technical supplies, publications, and equipment.
- Coordinates technical support to include MET and survey.
- Coordinates logistics and security requirements and liaises with the supported unit.
- Commands and directs the operations of the radar section
- Supervises maintenance personnel performing maintenance or repair of the radar.

SECTION CHIEF

- Supervises the operations and operator maintenance of radar equipment.
- Ensures compliance with safety procedures.
- Provides completed initialization worksheets to operators.

- Plans and supervises hasty survey.
- Instructs personnel in all aspects of radar operations and associated techniques.
- Assists the radar section leader in site selection.
- Organizes and maintains local security and unit defense.
- Assumes command of the section in the absence of the radar section leader.

SENIOR FIREFINDER RADAR OPERATOR

- Operates and supervises the operation of the radar set.
- Assists in the emplacement and concealment of the radar position.
- Assists the section chief in all of his duties.
- Provides technical guidance to radar operators.

FIREFINDER RADAR OPERATOR

- Emplaces and march-orders the radar and ancillary equipment.
- Initializes and operates all radar and ancillary equipment.
- Determines and corrects the altitudes of weapon locations from a contour map.
- Transmits the final locations to supported FDC or target processing section and keeps the necessary records.
- Operates and performs maintenance on the radar's prime movers.
- Performs hasty survey.
- Provides local security.
- Performs other duties assigned by the section chief.

RADAR REPAIRER

The radar repairer performs unit level/DS maintenance on the radar and assists the radar technician as required. He performs the following specific duties:

- Performs unit maintenance using built-in-test/built-in-test-equipment (BIT/BITE), fault detection and isolation.
- Isolates failures to a line replaceable unit (LRU) or shop replaceable unit (SRU) that can be replaced by a crewmember.
- Uses fault-isolation-test, replaces cards, modules, components and selected piece-parts.
- Troubleshoots, adjusts, aligns and repairs using BIT routines and test, measurement, and diagnostic equipment (TMDE) authorized by the maintenance allocation chart (MAC).
- Replaces and/or forwards unserviceable equipment to depot maintenance.
- Performs connector repair on certain specified cables.
- Provides local security and performs other duties assigned by the section chief.

POWER GENERATION EQUIPMENT REPAIRER

The power generation equipment repairer repairs and maintains tactical utility and precise power generation equipment. The power generation repairer is assigned only to Q-37 radar sections. Power generation repair support for Q-36 radar sections is provided by the power generation repairer assigned to the TAP or headquarters platoon of the parent TA organization or supported unit. The power generation equipment repairer performs the following duties:

- Troubleshoots mechanical and electrical systems and components; diagnoses and isolates malfunctions; tunes engine, and replaces components.
- Test operates repaired equipment.
- Assists in radar operations as required.
- Provides local security and performs other duties assigned by the section chief.

USMC COUNTERBATTERY RADAR PLATOON

The United States Marine Corps (USMC) counterbattery radar (CBR) platoon is organic to the headquarters battery of the USMC artillery regiment. The platoon consists of a headquarters section, four AN/TPQ-46A radar sections, and a target processing center (TPC). The primary mission of the CBR platoon is to locate enemy rocket, mortar, and artillery weapons and process all acquired enemy locations in a timely manner for counterfire and intelligence purposes. Secondary missions that can be assigned by the supported artillery unit are adjusting or registering artillery.

The CBR platoon is normally employed as a unit and controlled by the regimental artillery commander. The TPC is established in the regimental artillery main combat operations center (COC) or co-located with the fire support coordination center (FSCC) at the Division COC. The CBR platoon commander works closely with the regimental S2 and S3 to ensure that all CBR assets are being optimally utilized and that all counterfire and intelligence data generated by those assets are being processed correctly.

The CBR platoon commander coordinates the employment of radars operating under regimental control. The S2 and S3 provide guidance as deduced from the plan of observation and the S3 designates areas that will receive radar coverage. Based on this guidance, the CBR platoon commander selects a sector of search and general position area for each radar section. The radar section leader selects the actual radar site.

Meteorological and survey support are provided to the CBR platoon by the artillery regimental headquarters battery. If attached to a direct support field artillery battalion, the artillery battalion survey team will provide survey support. Figure 2-9 shows the organization of the CBR Radar Platoon.

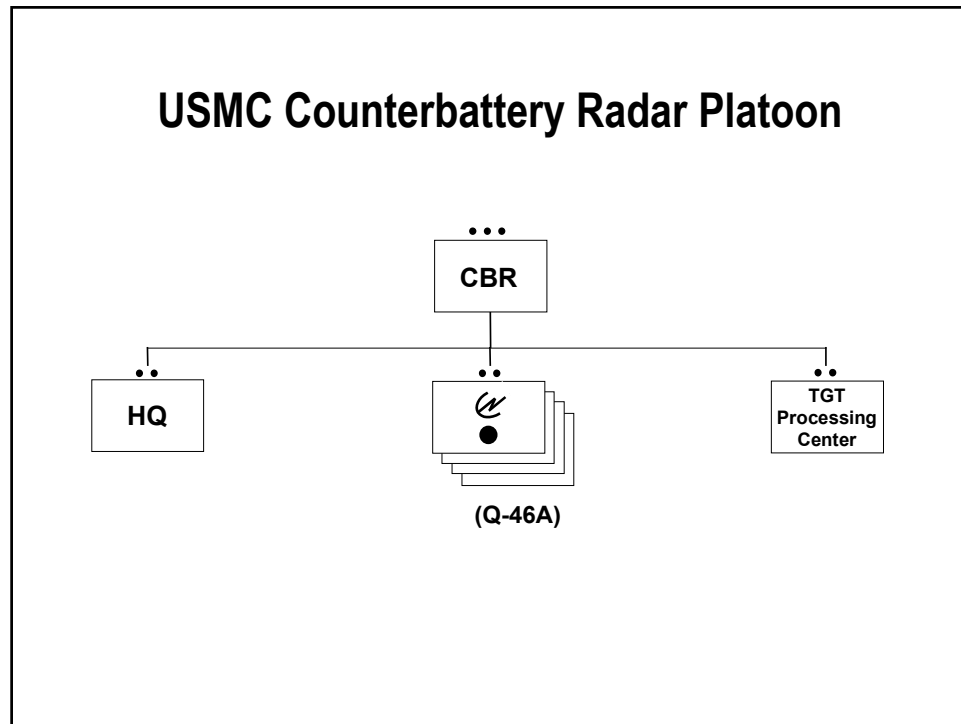


Figure 2-9. USMC Counterbattery Radar Platoon

PLATOON HEADQUARTERS

The platoon headquarters consists of the platoon commander and the radar employment chief. They perform duties similar to the radar platoon leader and platoon sergeant in U.S. Army TA organizations. Table 2-6 shows the composition of the platoon headquarters.

Table 2-6. USMC CBR Platoon Headquarters Personnel

Title	Rank	MOS	Number
Platoon Commander	CWO3	0803	1
Radar Employment Chief	MSG	0848	1
Total			2

AN/TPQ-46A RADAR SECTION

The AN/TPQ-46A weapons locating radar section has a crew of nine marines. Its primary mission is to locate enemy mortars, artillery and rocket firing positions for counterfire and intelligence purposes. This radar is optimized to detect high-angle indirect fire. It is also capable of developing accurate grid locations of indirect fire units using low-angle indirect fire. As a secondary mission the friendly fire mode can be used to perform high-burst, datum-plane, or impact-predict registrations. The fire direction center can use the impact data

provided by the radar in the friendly fire mode to conduct adjust-fire missions. Table 2-7 shows the composition of the AN/TPQ-46A radar section.

Table 2-7. AN/TPQ-46A Radar Section Personnel

Title	Rank	MOS	Number
Section Leader	SSGT	0848	1
Watch Chief	SGT	0842	1
Watch Chief/ Radar Operator	CPL	0842	2
Radar Operator	LCPL	0842	3
Radar Operator	PFC	0842	2
Total			9

The AN/TPQ-46A radar is the same as the AN/TPQ-36(V)8. Components of the radar are discussed in Chapter 4.

TARGET PROCESSING CENTER

The TPC is a detachment of the CBR Platoon. The TPC aids in processing counterfire targets and provides liaison between the supported unit and radars. Under most circumstances, the TPC is located with the regimental fire support coordination center (FSCC) to take advantage of available intelligence, facilitate clearance of counterfires and coordinate air attack of counterfire targets with the division air officer. Table 2-8 shows the composition of the TPC.

Table 2-8. Target Processing Center Personnel

Title	Rank	MOS	Number
Processing Section Leader	GYSG T	0848	1
Processing Team Leader	SGT	0844	2
Recorder/Plotter	CPL	0844	2
Recorder/Driver	PFC	0844	2
Total			7

DUTIES OF USMC COUNTERBATTERY RADAR PLATOON PERSONNEL

The following paragraphs provide the duties and responsibilities performed by USMC radar platoon personnel. The duties performed by USMC radar platoon personnel are very similar to those performed by U.S Army TA personnel.

PLATOON COMMANDER

The platoon commander's duties are similar to the target acquisition or radar platoon leader's duties in Army TA organizations. The platoon commander performs the following duties:

- Commands and directs the operations of the platoon.

- Advises the supported commander and staff on the technical considerations affecting the employment of radars and recommends the general locations of radar sites.
- Performs reconnaissance and selection of radar sites with the radar section leader.
- Examines, writes and interprets SOPs, orders, directives and technical publications for data pertinent to employment of radars and the processing of counterfire and intelligence data.
- Supervises the activities of all radar platoon personnel.
- Inspects and tests equipment to determine the adequacy of maintenance.
- Reviews and consolidates requisitions for tools, repair parts, technical supplies and equipment.
- Coordinates survey, logistical and security requirements.

RADAR EMPLOYMENT CHIEF

The duties of the radar employment chief are similar to the duties of target acquisition or radar platoon sergeant in Army TA organizations. The radar employment chief performs these duties:

- Performs the duties of the platoon commander in his absence.
- Plans, coordinates and supervises the internal functioning of the platoon, to include, maintenance, repair, inventory, logistics, administration and training.
- Assists the platoon commander.
- Orders maps and trig lists for operational areas.

RADAR SECTION PERSONNEL

Radar Section Leader

The duties of the radar section leader are similar to the radar section chief in Army TA organizations. The radar section leader performs the following duties:

- Assists the Platoon Commander in the selection of radar sites.
- Evaluates the radar site after selection to determine the location of all equipment, vehicles, and local security.
- Supervises the march order, emplacement, camouflage, local security and all other activities within the radar site.
- Provides completed initialization worksheets to the radar operators.
- Checks all initialization data entered into the radar computer prior to the operator entering into the operational program.
- Ensures adherence to safety procedures by section personnel.
- Instructs radar personnel in radar operations and MOS related skills.
- Conducts hasty survey as necessary.
- Commands the radar section.
- Plans and supervises the maintenance of all section equipment.

- Orders parts for repair/replacement of radar equipment through the radar employment chief.
- Determines all manual terrain following data.

Radar Watch Chief

The duties of the radar watch chief are similar to the duties of the senior Firefinder radar operator in Army TA organizations. The radar watch chief performs the following duties:

- Assists the radar section leader in the accomplishment of his duties.
- Performs the duties of the radar section leader in his absence.
- Initializes the radar.
- Operates or supervises the operation of the radar.
- Provides technical guidance and training to the radar operators.
- Performs other duties assigned by the radar section leader.

Radar Watch Chief/Radar Operator

This individual performs the same radar operator duties as other radar operators. When this person is the senior individual present in the radar section, he also performs duties as the radar watch chief.

Radar Operator

The duties of the radar operator are similar to the duties of the radar operator in Army TA organizations. The radar operator performs these duties:

- Operates, emplaces, and march orders the radar and all auxiliary equipment.
- Performs operator maintenance on the radar and all auxiliary equipment.
- Provides local security and unit defense.
- Camouflages the radar and all auxiliary equipment.
- Performs other duties assigned by the radar section leader or watch chief.

TARGET PROCESSING CENTER PERSONNEL

Processing Section Leader

- Performs the duties of the radar employment chief in his absence.
- Trains and supervises the personnel within the target processing section.
- Performs the duties of the Platoon Sergeant of the radar platoon.
- Assists the supported unit's S2 and S3 within the COC to ensure proper integration of the Target Processing Center into the COC, and the timely processing of counterfire and intelligence data generated by the radars.
- Ensures that the Target Processing Center is fully manned and functioning at optimum efficiency to support all operational commitments.

- Makes liaison with the supported unit's Battery Gunnery Sergeant to ensure that all Target Processing Center personnel are included in the unit local security plan.

The Processing Team Leader

- Performs the duties of the processing section chief in his absence.
- Supervises the operations of his watch section within the Target Processing Center.
- Provides technical guidance and training to the members of his watch section.
- Performs other duties assigned by the processing section chief.

The Recorder/Plotter

- Records counterfire and intelligence data received from the radar teams.
- Plots all counterfire and intelligence data received to include radar data, flash and crater analysis rays, to ensure authenticity and to produce actual target data.
- Passes all counterfire and intelligence data to the supported unit's S2 after it has been checked, and assists the S2 in processing that information.
- Performs other duties assigned by the processing section leader or processing team leader.

The Recorder/Driver

The recorder/driver performs the same duties as the recorder/plotter. In addition, the recorder/driver performs duty as a vehicle driver.